REMARKS

By the foregoing Amendment, Claim 10 is amended. Entry of the Amendment, and favorable consideration thereof is earnestly requested.

The Examiner has objected to the drawings under 37 CFR 1.83(a) as not illustrating the claimed "plurality of brake components." Figure 1 and Paragraphs [0043] and [0044] of the specification have been amended so as to include a reference numeral highlighting the "plurality of brake components."

Claims 1-29 are currently pending and stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The Examiner specifically notes objection to the terms "conflict resolution scheme" and "control schemes." The Examiner also asserts that Applicant does not describe the "first brake component comprising a first type of brake component" and "a second component comprising a second type of brake component", and that therefore operation of the "components" is non-enabling.

Applicant respectfully asks the Examiner to reconsider the above rejection in view of the above Amendments and the below Remarks. Moreover, Applicant notes that very similar lack of enablement rejections with respect to the "conflict resolution scheme" and "control schemes" terms were made by Examiner Butler in the parent to the present application (U.S. Patent Application No. 10/612,178), but that Examiner Butler has withdrawn those rejections and has allowed the case in view of Applicant's arguments, which essentially corresponded to those presented below.

The enablement requirement of 35 U.S.C. 112 is concerned with whether the specification adequately describes how to make and use the invention. The analysis of whether a particular claim is supported by the disclosure in an

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 1. This sheet replaces the original sheet including Figure 1. In Figure 1, reference character 128 has been added.

Attachments: Replacement Sheet

application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. (see MPEP 2164.01). The standard for determining whether the specification meets the enablement requirement has been stated as follows: Is the experimentation needed to practice the invention undue or unreasonable? *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916); *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988); *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988)("The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation."). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991).

Control Schemes

Applicant respectfully submits that one reasonably skilled in the art could make and use the invention, including the features referenced by the Examiner, from the disclosure coupled with information known in the art without undue experimentation. Two of the terms the Examiner takes issue with are the first and second "control schemes." These "control schemes" are specifically defined in Paragraph [0038] of the Specification itself as comprising "at least one, and preferably a plurality of, rules concerning actuation of actuators 126 in response to various sensor signals 310." Numerous examples of known types of control schemes are also given, such as those for controlling service brakes, emergency brakes, trailer height adjustment, brake systems, suspension systems, anti-lock braking systems, shock-absorbing systems, etc.

Applicant respectfully submits that literally thousands of control schemes for controlling dozens of vehicle systems are extremely well known in the art, and that this is why Applicant has not included detailed descriptions of such control schemes in the specification of the current application. One example of a system which includes a control scheme is an anti-lock (or anti-skid) brake system. In a very simple example, a control scheme for such an anti-lock brake system may comprise the following rule: If wheel slip is sensed at any wheel and if braking is requested by the driver, generate pulsed control signals for the brake actuators. Of course, numerous more complex control schemes for these types of systems are extremely well-known (see for example the three different embodiments of control schemes described in Figures 3, 15 and 16 and accompanying text of U.S. Patent No. 6,671,606 and Figure 6 and accompanying text of U.S. Patent No. 5,358,317).

Another example of a vehicle system in connection with which numerous control schemes are well known is a vehicle traction control system. Again, in a simple example, such a system may comprise the following rule: If wheel slip is sensed only at one wheel, and if braking is requested by the driver, generate constant control signals for the brake actuators of the non-slipping wheels. Of course, numerous more complex control schemes for these types of systems are extremely well-known (see for example Figure 5 and accompanying text of U.S. Patent No. 5,358,317). Control schemes for electronic braking systems in general are also extremely well-known, with an example thereof being described in Figure 4 and accompanying text of U.S. Patent No. 6,299,261. Countless other control schemes for the above-three mentioned vehicle systems are also extremely well known, as are countless control schemes for many other types of vehicle systems.

As stated above, it is recognized that a patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d at 661, 18 USPQ2d at 1332. In the present application, details of the first and second control

schemes, which types of control schemes are extremely well known in the art, are omitted, as is preferable.

Conflict Resolution Scheme

With respect to the third claim element with which the Examiner apparently takes issue, the "conflict resolution scheme", this term is defined in Paragraph [0040] of the Specification itself as comprising:

> ...one or more rules concerning how to resolve conflicts between other rules. These conflict control rules may be absolute (e.g., "Safety scheme rules are always given priority over actuator control scheme rules."), or may depend upon sensed conditions of the vehicle (e.g., "When condition A is sensed, the rule contained in actuator control scheme X is given priority over the rule contained in actuator control scheme Y."). Of course, conflict control rules may be significantly more complicated in order to resolve potential conflicts between a number of actuator control schemes faced with a number of sensed conditions.

Thus, it would be clear to one reasonably skilled in the art that the "conflict resolution scheme" would be a set of rules concerning how to deal with conflicts between the rules comprising the first and second control schemes. Two specific examples of these rules are given in the specification -- they may be absolute with one set of rules (i.e., one of the first control scheme or the second control scheme) always being given priority over the other, or they may be dependent upon a sensed condition. Thus, for example, in the situation where first control scheme is an anti-lock brake system control scheme and the second control scheme is a traction control system control scheme, the conflict resolution scheme may comprise a rule which states that: The anti-lock brake system control scheme always takes precedence over the traction control system control scheme. Alternately, the conflict resolution scheme may comprise a rule which states that: The anti-lock brake system control scheme takes precedence over the traction control system control scheme when the vehicle is traveling less than 10 MPH, but

the traction control system control scheme takes precedence over the anti-lock brake system control scheme at 10 MPH or higher.

Applicant believes that the "conflict resolution scheme" element is enabled by the specification in that (i) at least two specific examples thereof are given in the specification and (ii) one reasonably skilled in the art could easily arrive at other rules which would comprise the conflict resolution scheme without undue experimentation.

First and Second Types of Brake Components

With respect to the next claim elements with which the Examiner expresses concern, specifically, the "first brake component comprising a first type of brake component" and "a second component comprising a second type of brake component", Applicant has amended the claims to remove these terms therefrom.

The Examiner has rejected all claims under 35 U.S.C. §102(b) as being anticipated by Kornhaas et al. (U.S. Patent No. 6,092,879). Applicant respectfully asks the Examiner to reconsider these rejections in view of the above Amendments and the below Remarks.

Prior Art Rejections

The present invention is directed to an electrical control network laid over one or more vehicle dynamics control and/or ride control systems of a heavy vehicle, which control network controls actuation of components thereof. The invention offers many advantages including reduction of components, simplified design, unified communication for numerous different types of system components, simplified resolution of conflicts between competing control strategies, expandability to additional vehicle systems, and flexibility to upgrade for

new, improved vehicle control schemes. Various features of the present invention are covered by the various claims, of which Claims 1, 10 and 21 are independent.

Independent Claim 1

Independent Claim 1 requires, among other limitations, (1) a central control unit generating central control signals for controlling a plurality of brake components, (2) a distributed electronic control unit generating local control signals for controlling only some of the plurality of brake components; and (3) a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals. Applicant respectfully submits that at least the above-highlighted elements are not disclosed, taught or suggested by the cited prior art.

More specifically, Kornhaas et al. does not disclose, teach or suggest in any way a central control unit generating control signals for controlling a plurality of brake components and a distributed electronic control unit generating local control signals for controlling only some of the plurality of brake components. While Applicant does not disagree with the Examiner's assertion that antilock controller 20 may be considered as equivalent to the claimed "central control unit", Applicant does not agree with the Examiner's assertion that braking force distribution controller 22 can be considered equivalent to the claimed "distributed electronic control unit." Applicant points out that the claimed electronic control unit is "distributed" in the sense that it is not centralized, but rather is used to control only one or a subset of the plurality of brake components. It is "distributed" because it is typically located in the vicinity of the brake component or components that it controls. On the other hand, the controller 22 of Kornhaas et al. is a distribution (not distributed) control unit (i.e., it is used to distribute braking force to all of the plurality of brake components). This distinction is reflected in Claim 1, in that Claim 1 requires that the "distributed control unit" generates local control signals

for controlling only some of the plurality of brake components. This is not true of the "braking force distribution controller 22" of Kornhaas et al., which is used to distribute braking force to all of the plurality of brake components.

Moreover, Kornhaas et al. does not disclose, teach or suggest in any way a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals. Kornhaas et al. discloses a defect detection unit 24 that:

> monitors the microcomputer and the other components of control unit 10 to see if they are working order; it also checks the working order of the external components, especially speed sensors 30-32, brake light switch 36, valve relay 44 return pump 40, and actuators 60-62.

(column 3, lines 24-29). Thus, the defect detection unit 24 of Kornhaas et al. is used to determine whether various components are in working order. There is no disclosure, teaching or suggestion in any way that the defect detection unit 24 determines whether there are conflicts between two sets of control signals (i.e., central control signals and local control signals), as is required by Claim 1.

In view of the above, Applicant respectfully submits that Claim 1, as well as claims 2-9 that depend therefrom, are patentable over the cited prior art.

Independent Claim 10

Independent Claim 10 requires, among other limitations: (1) a central control unit receiving sensor signals from at least one vehicle performance sensor; (2) a first control scheme used by the central control unit for generating central control signals for controlling a first brake component; and (3) a second control scheme used by the central control unit for generating central control signals for controlling a second brake component. Applicant respectfully submits that at least the above-highlighted elements are not disclosed, taught or suggested by the cited prior art.

More specifically, Kornhaas et al. does not disclose, teach or suggest in any way a central control unit that uses two separate control schemes (i.e., a first control scheme and a second control scheme), each of which is used to control one of two separate brake components (i.e., a first brake component and a second brake component). Rather, Kornhaas et al. teaches only a single control scheme (i.e., set of rules) used to generate control signals for controlling all of the brake components of the system.

In view of the above, Applicant respectfully submits that Claim 10, as well as claims 11-20 that depend therefrom, are patentable over the cited prior art.

Independent Claim 21

Independent Claim 21 requires, among other limitations: (1) a central control unit generating central control signals for controlling a plurality of brake components; and (2) a distributed electronic control unit generating local control signals for controlling only some of the plurality of brake components. Applicant respectfully submits that at least the above-highlighted elements are not disclosed, taught or suggested by the cited prior art.

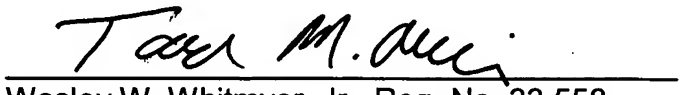
More specifically, as discussed above with respect to Claim 1, Kornhaas et al. does not disclose, teach or suggest in any way a central control unit generating control signals for controlling a plurality of brake components and a distributed electronic control unit generating local control signals for controlling only some of the plurality of brake components. While Applicant does not disagree with the Examiner's assertion that antilock controller 20 may be considered as equivalent to the claimed "central control unit", Applicant does not agree with the Examiner's assertion that braking force distribution controller 22 can be considered equivalent to the claimed "distributed electronic control unit." Applicant points out that the claimed electronic control unit is "distributed" in the sense that it is not centralized,

but rather is used to control only one or a subset of the plurality of brake components. It is "distributed" because it is typically located in the vicinity of the brake component or components that it controls. On the other hand, the controller 22 of Kornhaas et al. is a distribution (not distributed) control unit (i.e., it is used to distribute braking force to all of the plurality of brake components). This distinction is reflected in Claim 21, in that Claim 21 requires that the "distributed control unit" generates local control signals for controlling only some of the plurality of brake components. This is not true of the "braking force distribution controller 22" of Kornhaas et al., which is used to distribute braking force to all of the plurality of brake components.

In view of the above, Applicant respectfully submits that Claim 21, as well as claims 22-29 that depend therefrom, are patentable over the cited prior art.

For the foregoing reasons, Applicant respectfully submits that all pending claims, namely Claims 1-29, are patentable over the references of record, and earnestly solicits allowance of the same.

Respectfully submitted,



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